

# Randomized Controlled Trial: Effect of Nurse Triage on Deferrable Medical Visits

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## Possible Effect of Triage

- One possible effect is to reduce unnecessary demand on existing health care resources

Systematic review of triage services (Stacey et al. 2003) → 10 studies (including 6 RCTs)

- Evidence for decrease in visits to physicians
- Inconsistent evidence for visits to the ED

Studies conducted in the UK and USA...  
Relevance to Canadian Health Care???

## Telehealth Ontario

- Multilingual service
- 24/7
- Trained registered nurses
- Clinical guidelines
- Health information topics
- Advise on the most appropriate level of care

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## Group Health Centre (GHC)

- One of Ontario's largest membership-based health care organizations
- Wide variety of integrated health services  
([www.ghc.on.ca](http://www.ghc.on.ca))
- 44,000 GHC members during the study, now up to 53,000
- Electronic Medical Records (EMR)

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## Objectives of RCT

- Primary Objective

Does the active promotion of teletriage decrease patient visits to the GHC for combined diagnoses of nasopharyngitis and upper respiratory tract infection, vomiting, nausea and muscle aches or pains?

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## Objectives of RCT

- Secondary Objective

Does the active promotion of teletriage decrease patient visits for other diagnoses?

- a) For visits to GHC (walk-in clinic, MD office visits)
- b) For visits to Sault Area Hospital
- c) For visits to SAH ED (subset of 'b')

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## Stratified Random Design

- Strata
  1. Families: parent(s) & children (0-12 y)
  2. Frequent Visitors (history of past visits for cold/flu)
  3. Other patients (max of 10% of all patients)
- Randomized within strata to:
  - Teletriage Group: Asked to call the teletriage service prior to visiting/calling the GHC or SAH
  - Care-as-Usual Group: Asked behave normally with respect to health care seeking behaviour
- 14 month study

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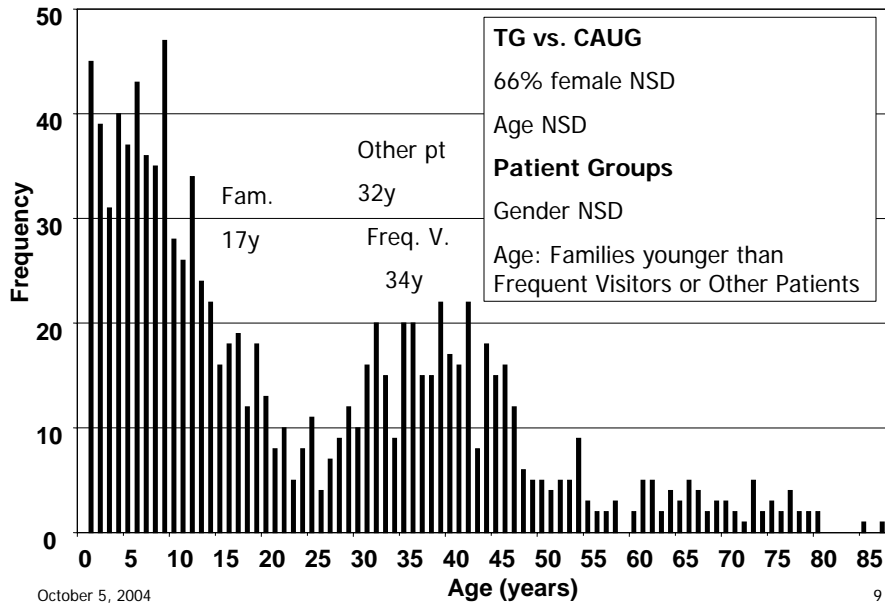
## Study Design & Statistical Analyses

- Single-blind RCT (patients knew, practitioners did not) (N=1057)
- Factors
  - Treatment Groups
    - Care-as-Usual Group (CAUG) n=519
    - Teletriage Group (TG) n=538
  - Patient Groups (Strata)
    - Families n = 622 (59%)
    - Frequent Visitors n=337 (32%)
    - Other patients n= 98 (9%)
- Mean number of calls, visits → t-tests, ANOVAs
- Counts → Chi-squared tests

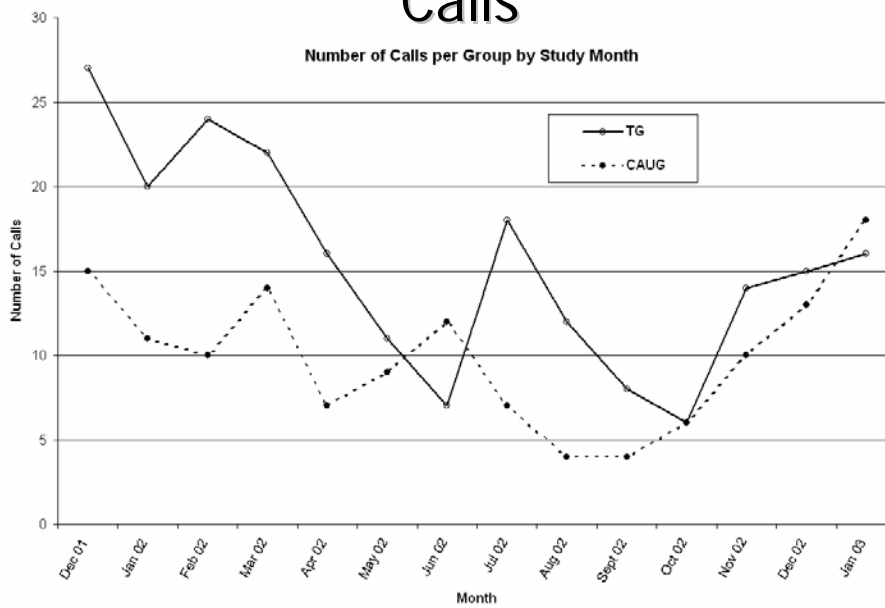
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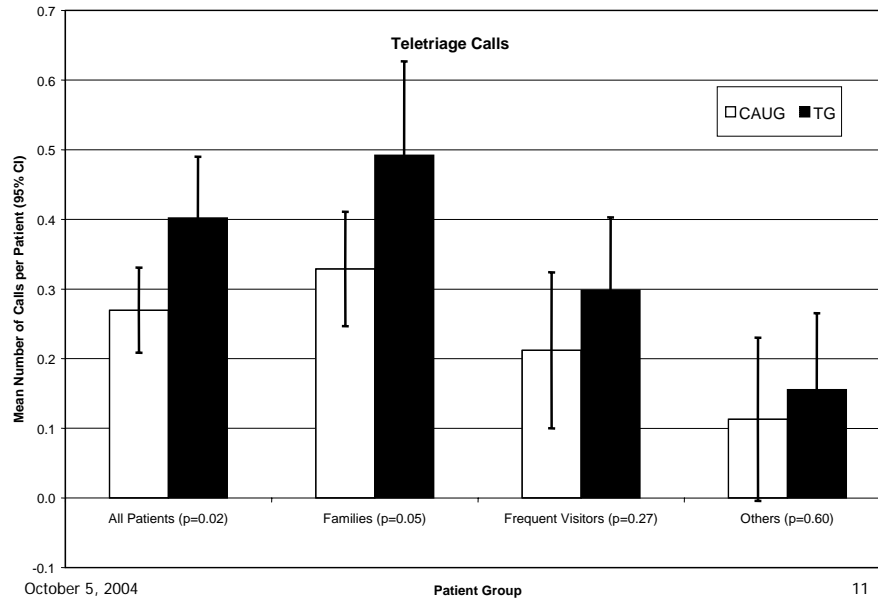
# Patients



# Calls



## Mean Call Rate



## Selected Diagnosis (Dx) Code Groups

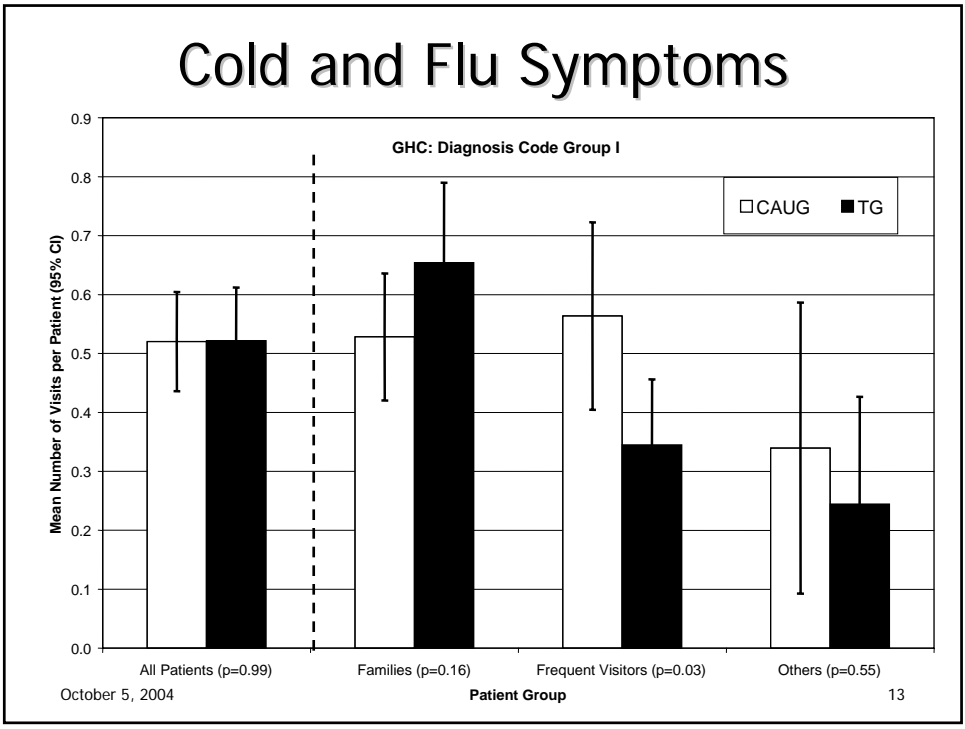
Code	Description	Justification
<i>Group I: Defined prior to data collection – original "selected Dx"</i>		
460	Acute nasopharyngitis [common cold]	It was hypothesized that some to many of the visits were deferrable
466	Acute bronchitis and bronchiolitis	
<i>Group II: Defined prior to data collection – original "selected Dx"</i>		
781	Symptoms involving nervous and musculoskeletal systems	It was hypothesized that <u>some</u> visits were deferrable (e.g., muscle pain – Advil and rest) (e.g., gastroenteritis – Gravol and rehydration)
787	Symptoms involving digestive system	
<i>Group III: Defined after data collection, but before analysis -- "Other Respiratory Symptoms"</i>		
461	Acute sinusitis	It was hypothesized that <u>some</u> visits were deferrable
477	Allergic rhinitis	
490	Bronchitis, not specified as acute or chronic	
786	Symptoms involving respiratory system and other chest symptoms	

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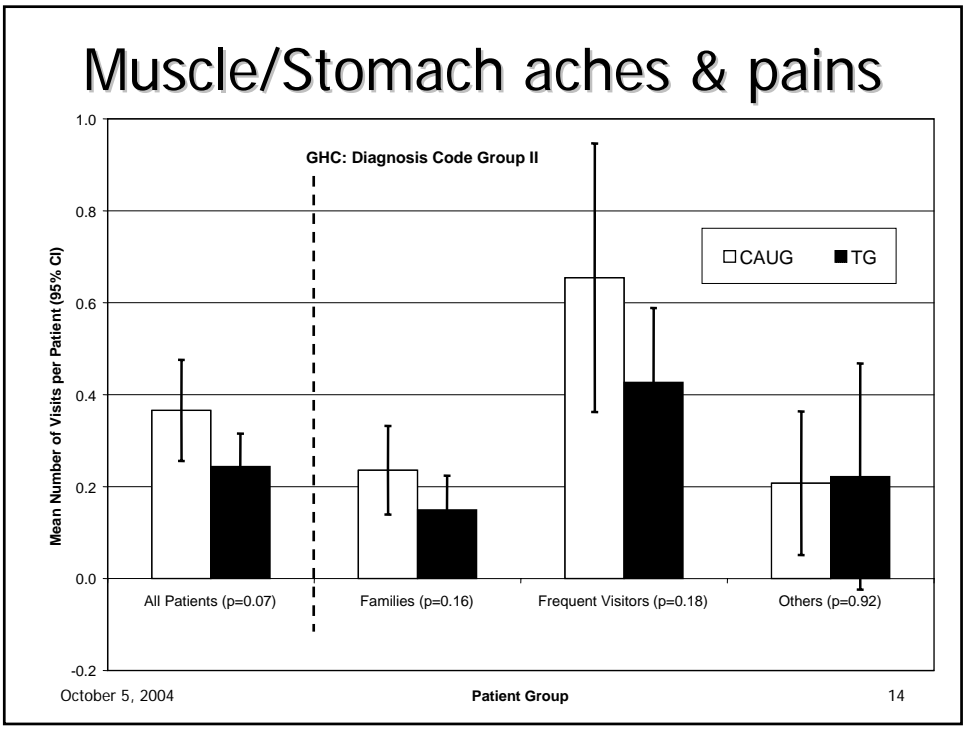
Source: World Health Organization (1977)

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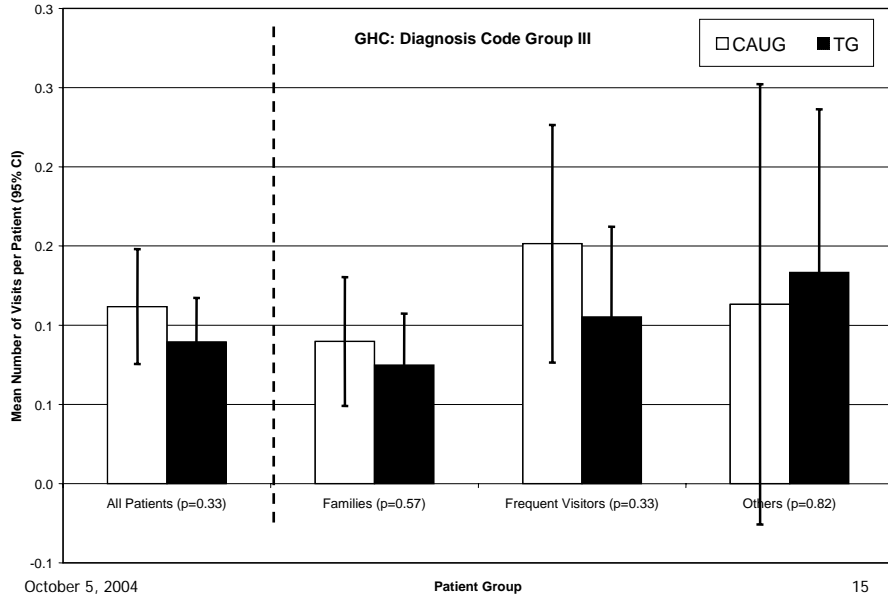
# Cold and Flu Symptoms



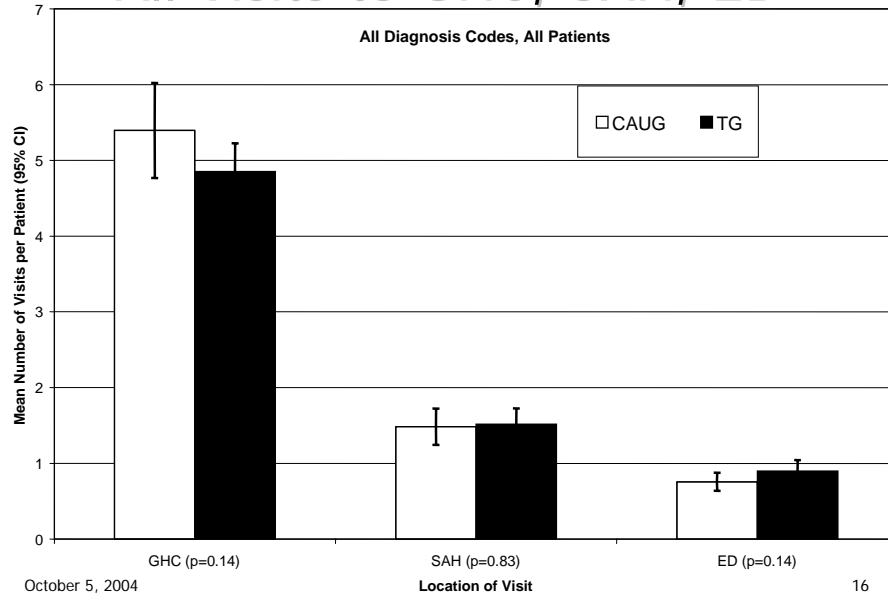
# Muscle/Stomach aches & pains



# Other Respiratory Symptoms



# All Visits to GHC, SAH, ED





## Synopsis of RCT Results (1 of 3)

- Promotion of teletriage resulted in 50% more calls to the service (Telehealth Ontario)
- Mean call rate was significantly higher in Teletriage group over the 14 months
- Greatest difference in call rates in first 6-10 months of study

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## Synopsis of RCT Results (2 of 3)

- A. No statistically significant difference in mean visit rate for
- Visits to the GHC for:
    - Common cold
    - Muscle/Stomach aches & pains
    - Other respiratory symptoms
  - Subgroup analyses
    - Visits to the GHC for:
      - Common cold } 39% lower for TG frequent visitors (statistically significant)

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## Synopsis of RCT Results (3 of 3)

- B. No difference in visit rate for
- All types of visits to GHC
  - All Sault Area Hospital visits
  - ED visits only

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## Limitations of the Study (1 of 2)

- Intervention strength
  - Single promotion of teletriage
  - Declining difference between TG and CAUG in the number of calls over the 14 months
  - 91 patients in CAUG called (18%)
  - 121 patients in TG called (23%)

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## Limitations of the Study (2 of 2)

- Identifying deferrable visits
  - Common cold (some to many are potentially deferrable)
  - Muscle/ stomach aches and pains (some)
  - Other respiratory symptoms (some)
  - All ED visits (few)
  - All Hospital or all GHC visits (few)

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## Conclusions

- Study tried to identify, *a priori*, which patients could be affected and what type of visits could be deferred by calling the teletriage service
- RCT study provided limited support for reduction in potentially deferrable visits
  - 39% reduction in GHC visits for common cold, but only for Frequent Visitors

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## Acknowledgements

- Patients
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- Colleagues at CRaNHR, GHC and Laurentian University
  
- Dedicated, with respect, to Dr. Hui Nien Lee, who passed away earlier this year.

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Thank you.

For more information...

[www.cranhr.ca](http://www.cranhr.ca)

[www.ghc.on.ca](http://www.ghc.on.ca)

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